1. Name of the Project

Country: India  
Project: West Bengal Piped Water Supply Project  
Loan Agreement: March 28, 2013  
Loan amount: 14,225 million yen  
Borrower: The President of India

2. Background and Necessity of the Project

1) Current State and Issues of the Water Supply / Sewerage and Sanitation Sector in India

In India, accessibility to safe water has been improved from 72% in 1990 to 88% in 2008. The country has been reaching its goal of establishing sustainable access to drinking water in throughout India under the Twelfth Five-Year Plan (April 2012 through March 2017). However, water resource development and construction of water supply/sewerage systems are not keeping up with the increasing demand in drinking water stemming from India’s increasing population and economic growth. Today, the country suffers from an excessive dependence on groundwater and chronic problems such as a broken and uneven water supply. Even worse, groundwater in some areas contains substances harmful to humans such as fluoride and arsenic. In particular, the fluoride level in the water in northern and western part of the country far beyond the WHO guidelines of 1.5 mg/L, calling for urgent action to ensure the supply of safe drinking water. The sewerage systems in the country are also troubled. Specifically, the percentage of facilities connected to sewer pipes remains extremely low—just 28% even in urban areas. Due to a drastic influx of population into urban areas and rapid industrialization, wastewater has overflowed treatment capacity and is passing untreated into rivers and the like, threatening living conditions and sanitation for local residents. The organizations providing drinking/sewerage water services face technical and financial challenges in operation/maintenance, such as high ratios of non-revenue water, undervalued fares, and a lack of trained employees.

2) Development Policies for the Water Supply/Sewerage and Sanitation Sector in India and Priority of the Project

The Union Government set a policy agenda under the Twelfth Five-Year Plan (April 2012 through March 2017) for supplying drinking water to the entire population in urban areas. In 2009, the Union Government further formulated the National Rural Drinking Water Programme (NRDWP) to supply safe and sufficient drinking water in rural areas as soon as possible and to promote sustainable maintenance. Also, under the strategic plan related to rural water supply that was formulated in 2010, the Government set a goal to use its waterworks to supply safe and sufficient drinking water to the entire population in rural parts of India by 2022. The waterworks improvement program is expected to continue under the same strategic plan in the Twelfth Five-Year Plan. The plan aims to boost coverage of the drinking water supply system to 55% by 2017 (currently at 30%). This project fulfills the strategic plan and is defined as one that contributes to increased coverage of the drinking water supply system in rural area.

3) Japan and JICA's Policy and Operations in the Water Supply/Sewerage and Sanitation Sector in India

As a part of environmental measures, priority goals were formulated by the Government of Japan for improving poverty and environmental issues under the Country Assistance Program for India. The Country Assistance Program will consider the rapid growth of urban population and support the supply of adequate and safe drinking water and the remediation of poor public sanitation in order to improve living standards and prevent water contamination in the major rivers. Further, in rural areas, water supply development projects are supported as part of the development of basic infrastructure for the living environment of the poor. In Japanese ODA loans for India in the water supply/sewerage and sanitation sector, there are 26 projects with loans totaling 501.6 billion yen (14.1% of the entire approved amount). Under non–Japanese
ODA loans, JICA is currently providing Technical Assistance Related to ODA Loan, Capacity Development Project for Non-Revenue Water Reduction in Goa. JICA’s other contributions include dispatching policy advisors in charge of the sewerage water sector to the Ministry of Urban Development since May 2011.

(4) Other Donors’ Activity

The World Bank (WB) pointed out that achieving rapid and comprehensive growth, ensuring sustainable development, and boosting efficiency in service supply were priority areas under the country assistance strategy scheme. The bank decided to provide support for constructing water works and improving the sanitary environment to assist in these areas. The Asian Development Bank (ADB) currently supports the drinking water sector as a part of poverty reduction. The bank defined the following priority items: (1) providing support in priority states (Madhya Pradesh, Kerala, and North Eastern states), (2) emphasizing the financial soundness of institutions in charge of project operation, (3) considering impoverished groups, and (4) supporting pilot projects that facilitate fund diversification, including private investment.

(5) Necessity of the Project

The project site, Puruliya District, is located in the western region of the West Bengal State and has a population of approximately 2.93 million. The project site is a frontier area, about 300 km away from the state capital of Kolkata. The area is one of the most underdeveloped in the West Bengal state, with a low literacy rate and low income level. Nearly 90% of the population lives in rural areas. The percentage of households under the poverty line is 43.7%, higher than the national average of 26.1%.

The Union Government formulated a policy to encourage greater use of water systems to ensure a safe and sufficient water supply. The West Bengal state government coined the slogan “from wells to waterworks” for its policy, while making a progress towards constructing waterworks throughout the state. However, the coverage of the drinking water supply system in the Puruliya District is 16.8%, this is lower than the state average of West Bengal 38.0%. In other words, the district is most backward in West Bengal in terms of coverage. Because the Puruliya District has a limited amount of surface stream water available, most residents rely heavily on groundwater to supply their household water. However, groundwater levels are lower during the dry season because of the recent surges in water demand resulting from the region’s growing population. Water shortages therefore occur when people become unable to pump the groundwater. Moreover, it was confirmed that some of the groundwater in Puruliya District contains naturally derived fluoride at levels beyond WHO guidelines for drinking water. Thus supplying safe drinking water through constructing waterworks is considered to be a pressing issue.

This project aims to resolve water shortages and problems with fluoride-contaminated drinking water in Puruliya District so that local residents have access to safe and sufficient water. Therefore, the aim of the project satisfies the development policies of the Indian government as well as the support policies of the Japanese government and JICA. Consequently, JICA’s support for this project is highly necessary and relevant.

3. Project Description

(1) Project Objectives

The objective of this project is to provide safe and stable drinking water supply services in Puruliya District, West Bengal State, which is located in the eastern region of India—a region that is suffering from chronic water shortages and concerns over fluoride contamination in groundwater. The project aims to construct drinking water facilities using surface stream water and take measures to prevent fluorosis, thereby improving health and living conditions for local residents.

(2) Project Site/Target Area
Puruliya District, West Bengal State

(3) Project Component

1) Drinking water facilities (e.g. water intake facilities, water purification plants, water lines, pump stations, distribution reservoirs, and water supply networks)
2) Consultation service (e.g. reviewing detailed design, bidding support, supervision of construction work, capacity building of relevant organizations, and supporting resident education activities)

(4) Estimated Project Cost (Loan Amount)

17,480 million yen (Yen Loan Amount: 14,225 million yen)

(5) Schedule

Planned between March 2013 and March 2020 (total of 85 months). Project completion is defined as the commencement of the service of the facilities (February 2019).

(6) Project Implementation Structure

1) Borrower: The President of India
2) Executing Agency: Public Health Engineering Department, Government of West Bengal (PHED)
3) Operation and Maintenance System: Same as 2 (partial relegation to municipal governments is planned)

(7) Environmental and Social Consideration / Poverty Reduction/Social Development

1) Environmental and Social Consideration
   i) Category: FI
   ii) Reason for Categorization: This project is classified as FI because it is impossible to specify subprojects for this project before loan agreement, and the subprojects may have an undesirable impact on the environment as defined by the JICA Environmental and Social Guidelines (established in April 2010).
   iii) Other/Monitoring: Under this project, the executing agency should categorize each subproject so that the necessary measures are taken in each category. The categorization should be implemented according to India's domestic laws and ordinances as well as the JICA Environmental and Social Guidelines (established in April 2010), with the help of consultants hired using funds borrowed in the form of the Japanese ODA loan. Subprojects include no Category A projects.

2) Promotion of Poverty Reduction: This project will implement awareness activities for local residents including impoverished groups. Topics include public health, conservation of water and the environment.

3) Promotion of Social Development (e.g. Gender Perspective, Measures to Prevent Infectious Diseases Including AIDS, Participatory Development, Consideration for the Handicapped, etc.): The aspect of gender will be taken into consideration in the capacity building of relevant organizations, and awareness activities.

(8) Collaboration with Other Donors: N/A

(9) Other Important Issues: This project aims to reduce the adverse impact of climate change through improving living conditions for local residents. The improvements should be achieved by securing a safe and stable drinking water supply by constructing drinking water facilities. This project therefore contributes to climate change adaptation measures.

4. Project Benefits

(1) Quantitative benefits

1) Evaluation Indicators (Operation and Effect Indicator)
<table>
<thead>
<tr>
<th>Indicators</th>
<th>Baseline (2012 actual)</th>
<th>Target (2021) two years after completion</th>
</tr>
</thead>
<tbody>
<tr>
<td>Population with access to water supply (thousands of people)</td>
<td>-</td>
<td>1,247</td>
</tr>
<tr>
<td>Coverage of the water supply system (%)</td>
<td>-</td>
<td>100</td>
</tr>
<tr>
<td>Water supply quantity (M³/day)</td>
<td>-</td>
<td>87,269</td>
</tr>
<tr>
<td>Available water per capital per day (L)</td>
<td>-</td>
<td>70</td>
</tr>
<tr>
<td>Number of water control associations to be established</td>
<td>-</td>
<td>45</td>
</tr>
</tbody>
</table>

2) Internal Rate of Return (EIRR)

Based on the conditions below, the Economic Internal Rate of Return (EIRR) of this project was calculated as 7.95%.

EIRR:
Cost:  Project cost (excluding tax), operation and maintenance expenses
Benefits: Water charge payments and cutting costs in constructing/maintaining fluoride eliminator
Project Life: 30 years

(2) Qualitative benefits

Improvement of health and living conditions for people in Puruliya District, West Bengal State, enhancing the management capacity of municipal governments in terms of operation and maintenance, and adapting to climate change.

5. External Risk Factors and Risk Control

Economic stagnation and deterioration in political situation in India and the surrounding area of the project as well as natural disasters

6. Lessons Learned from Past Projects

(1) Result of Evaluation of Similar Past Projects

A lesson learned from the results of the Philippines' ex-post monitoring of the Boracay Environmental Infrastructure Project was that when the operating party differs from the executing party, it is critical to secure involvement of the operating party from the project planning stage to foster ownership. A Lesson learned from the results of Indonesia's ex-post monitoring of the Rural Areas Infrastructure Development Project (3) was that when managing small, diverse projects, it is absolutely imperative to set up a systematic management system and define its operation throughout the entire process from central control functions to the margins.

(2) Lessons for the Project

Operation and maintenance of drinking water facilities in the towns for this project will be delegated to respective local Municipal Governments and intra village distribution system to Panchayat Raj Institutions through Village Water and Sanitation Committee (VWSC) other than that of executing agency. Therefore, based on lessons learned, JICA will provide educational activities and training programs for the municipal government and local residents to educate them about their roles and responsibilities in the operation and maintenance of the relevant facilities, thus involving the local government and PRIs are involved from the project formulation stage. JICA will also carefully collect feedback from the local governments and PRIs. The executing agency will compile detailed information related to project progress collected at the project sites to
make a database so that the agency can manage the data in a consolidated manner. In this way, the agent can achieve efficient operation.

7. Plans for Future Evaluation

(1) Indicators for Future Evaluation:
   1) Population with access to water supply (thousands of people)
   2) Coverage of the water supply system (%)
   3) Water supply quantity (M$^3$/day)
   4) Per-capita water quantity available (L)
   5) Number of water control associations to be established
   6) Internal Rate of Return (EIRR) (%)

(2) Timing of Next Evaluation:
   Two years after plan completion